Remarks

The Office Action mailed November 13, 2008, and made final, has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-23 are now pending in this application. Claims 1-23 stand rejected.

The rejection of Claims 1-23 under 35 U.S.C. § 101 as being directed to non-statutory subject matter is respectfully traversed. More specifically, the Examiner asserts that Claims 1-223 are rejected because Claims 1-23 "neither transform underlying subject matter nor positively tie to another statutory category that accomplish the claimed method steps, and therefore do not qualify as a statutory process."

Applicants respectfully submit that Claims 1-11 and 22 recite methods that utilize a computer to perform the claimed elements. As such, Applicants respectfully submit that Claims 1-11 and 22 are directed to processes that are tied to computers, which are statutory subject matter. However, in order to expedite prosecution, Applicants have amended Claims 1-11 and 22 to recite methods utilizing a computer in communication with an imaging system and a monitoring system to perform claimed elements that are tied to the computer, the imaging system, and the monitoring system. Applicants respectfully submit that the claimed computer, imaging system, and monitoring system are structures defining a system, which positively ties the steps performed to a statutory structure. Accordingly, Applicants respectfully submit that Claims 1-11 and 21, as amended, satisfy the requirements of Section 101.

Applicants respectfully submit the Examiner's assertion at pages 2 and 3 of the Office Action that Claims 12-21 and 23 are process claims. Rather, in contrast to such an assertion, Claims 12-21 and 23 recite apparatus, rather than processes. As such, Applicants respectfully submit that Claims 12-21 and 23 are directed to apparatus and are statutory subject matter. Accordingly, Applicants respectfully submit that Claims 12-21 and 23 satisfy the requirements of Section 101.

For at least the reasons set forth above, Applicants respectfully request that the Section 101 rejection of Claims 1-23 be withdrawn.

The rejection of Claims 1, 8-12, and 19-23 under 35 U.S.C. § 103(a) as being unpatentable over Christiaens et al., "CG-Based Selection of Angiographic Images using DICOM Facilities" (hereinafter referred to as "Christiaens") in view of Becker et al., "The Development of an Application Profile for DICOM Waveforms in the Cathlab" (hereinafter referred to as "Becker") is respectfully traversed.

Christiaens describes a method for quasi-automatically selecting angiographic images using Digital Imaging and Communications in Medicine (DICOM) facilities. The method includes retrieving required data from a DICOM file. The retrieved data includes image data, electrocardiogram (EGC) data, projection angles, patient name and number, a study date, a frame rate, and a sampling rate. The EGC data is processed to detect R-peaks in the retrieved EGC signal. The image data includes a sequence of images. Images recorded approximately at the moment an R-peak occurred are selected out of the image sequence using the synchronization properties between the image sequence and the ECG sequence. The selected images are then displayed. More specifically, as shown in Figure 7, a plurality of selected images are displayed individually, side-by-side, and are not combined in to a single frame of image data.

Notably, Christiaens does not describe nor suggest that the retrieved data includes time-stamped imaging data or time-stamped physiologic data. As such, Christiaens does not describe nor suggest time-stamping each of the frames using a first clock within an imaging system, time-stamping at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronizing the time-stamps generated by the first clock with the time-stamps generated by the second clock. Furthermore, Christiaens describes displaying a plurality of selected images and, in contrast to the Examiner's assertion at page 4 of the Office Action, does not describe or suggest producing a single representative frame of image data using aligned and averaged frames of imaging data.

Becker describes a method to create combined data-sets of image data and waveform data. To match an image with a corresponding time-sample in the waveform, time is synchronized between acquired images and the waveform. "Synchronized acquisition between different modalities requires either a shared trigger, or a shared clock." As such, a common channel and/or a shared clock is used to synchronize the acquired images with the waveform. The shared clock is stored in a central system to which an image acquisition device and a waveform acquisition device are connected. Notably, Becker does not describe or suggest separate clocks within the image acquisition device and the waveform acquisition device. Rather, the image acquisition device and the waveform acquisition device poll the shared clock such that internal clocks in the image acquisition device and the waveform acquisition device match the shared clock. Accordingly, the internal clocks are not different from each other.

In Becker, the outputs of the image acquisition device and the waveform acquisition device include the time from each respective internal clock. When a common channel is used, the internal clocks in the image acquisition device and the waveform acquisition device are related by a reference channel from the image acquisition device being recorded by the waveform acquisition device as an additional channel. As such, the signal from the additional channel provides a time relationship between the acquired images and the waveform. Notably, Becker does not describe or suggest time-stamping each of the frames using a first clock within an imaging system, time-stamping at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronizing the time-stamps generated by the first clock with the time-stamps generated by the second clock. Further, Becker does not describe or suggest producing a single representative frame of image data based on aligned and averaged frames of imaging data.

Claim 1 recites a method for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles, the imaging data comprising frames representative of a succession of images of the patient's heart, said method comprising utilizing a computer in communication with an imaging system and a monitoring system to "time-stamp each of the frames of the imaging data acquired by said computer using a first clock within the imaging system . . . time-stamp at least one feature within the physiologic data using a second clock within the monitoring system, the second clock different than the first clock . . . store the time-stamped frames of the imaging data and the time-stamped physiologic data within a memory device . . . synchronize time-stamps generated by the first clock with time-stamps generated by the second clock . . . analyze the stored time-stamped physiologic data to determine times of a selected phase in the plurality of cardiac cycles . . . select, in the plurality of cardiac cycles, the stored time-stamped frames of imaging data corresponding to the determined times of the selected phase . . . align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles . . . and produce a single representative frame of image data based on the aligned and averaged frames of imaging data."

Neither Christiaens not Becker, considered alone or in combination, describes or suggests a method for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles as recited in Claim 1. More specifically, neither Christiaens not Becker, considered alone or in combination, describes or suggests utilizing a computer to time-stamp each of the frames using a first clock within an imaging system, time-stamp at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronize the time-stamps generated by the first clock with the time-stamps generated by the second clock. Further, neither Christiaens not Becker, considered alone or in combination, describes or suggests utilizing a computer to produce a single representative frame of image data based on aligned and averaged frames of imaging data.

Rather, Christiaens describes quasi-automatically selecting images recorded approximately at the moment a detected R-peak occurred using synchronization properties between a retrieved image sequence and a retrieved ECG sequence. Christiaens also describes that a plurality of selected images are displayed as separate images. Becker describes using a shared clock to acquire synchronized image data and waveform data.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Christiaens in view of Becker.

Claims 8-11 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 8-11 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 8-11 likewise are patentable over Christiaens in view of Becker.

Claim 12 recites a cardiology analysis apparatus for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles, the imaging data comprising frames representative of a succession of images of the patient's heart, said apparatus comprising "an imaging system . . . a monitoring system . . . and a computer in communication with said imaging system and said monitoring system, said computer configured to . . . time-stamp each of the frames of the imaging data acquired by said apparatus using a first clock within said imaging system . . . time-stamp at least one feature within the physiologic data using a second clock within said monitoring system, the second clock different than the first clock . . . store the time-stamped frames of the imaging data and the time-stamped physiologic data within a memory device . . . synchronize time-stamps generated by the first clock with time-stamps generated by the second clock . . . analyze the stored time-stamped physiologic data to determine times of a selected phase in the plurality of cardiac cycles . . . select, in the plurality of cardiac cycles, the stored time-stamped frames of imaging data corresponding to the determined times of the selected phase . . . align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles . . . and produce a single representative frame of image data based on the aligned and averaged frames of imaging data."

Neither Christiaens not Becker, considered alone or in combination, describes or suggests a cardiology analysis apparatus for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles as recited in Claim 12. More specifically, neither Christiaens not Becker, considered alone or in combination, describes or suggests a cardiology analysis apparatus that includes a computer that time-stamps each of the frames using a first clock within an imaging system, time-stamps at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronizes the time-stamps generated by the first clock with the time-stamps generated by the second clock. Furthermore, neither Christiaens not Becker, considered alone or in combination, describes or suggests a cardiology analysis apparatus that includes a computer that produces a single representative frame of image data based on aligned and averaged frames of imaging data.

Rather, Christiaens describes quasi-automatically selecting images recorded approximately at the moment a detected R-peak occurred using synchronization properties between a retrieved image sequence and a retrieved ECG sequence. Christiaens also describes that a plurality of selected images are displayed as separate images. Becker describes using a shared clock to acquire synchronized image data and waveform data.

Accordingly, for at least the reasons set forth above, Claim 12 is submitted to be patentable over Christiaens in view of Becker.

Claims 19-21 depend from independent Claim 12. When the recitations of Claims 19-21 are considered in combination with the recitations of Claim 12, Applicants submit that dependent Claims 19-21 likewise are patentable over Christiaens in view of Becker.

Claim 22 recites a method for analyzing stored frames of time-stamped cyclical image data obtained during a study of an object during a plurality of cycles, said method comprising utilizing a computer in communication with an imaging system and a monitoring system to "time-stamp at least one frame within the cyclical image data acquired by said computer using a first clock within the imaging system . . . time-stamp at least one feature within physiologic data acquired by said computer using a second clock within the monitoring system, the second clock different than the first clock . . . store the time-stamped cyclical image data and the time-stamped physiologic data within a memory device . . . synchronize time-stamps generated by the first clock with time-stamps generated by the second clock . . . analyze the stored time-stamped cyclical image data to determine time of a selected phase of the cycle . .

. select, in the plurality of cycles of time-stamped cyclical image data, stored images corresponding to the determined times of the selected phase . . . align and average the selected images corresponding to the selected phase across the plurality of cycles . . . and produce a single representative frame of image data based on the aligned and averaged frames of imaging data."

Neither Christiaens not Becker, considered alone or in combination, describes or suggests a method for analyzing stored frames of time-stamped cyclical image data obtained during a study of an object during a plurality of cycles as recited in Claim 22. More specifically, neither Christiaens not Becker, considered alone or in combination, describes or suggests utilizing a computer to time-stamp each of the frames using a first clock within an imaging system, time-stamp at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronize the time-stamps generated by the first clock with the time-stamps generated by the second clock. Furthermore, neither Christiaens not Becker, considered alone or in combination, describes or suggests utilizing a computer to produce a single representative frame of image data based on aligned and averaged frames of imaging data.

Rather, Christiaens describes quasi-automatically selecting images recorded approximately at the moment a detected R-peak occurred using synchronization properties between a retrieved image sequence and a retrieved ECG sequence. Christiaens also describes that a plurality of selected images are displayed as separate images. Becker describes using a shared clock to acquire synchronized image data and waveform data.

Accordingly, for at least the reasons set forth above, Claim 22 is submitted to be patentable over Christiaens in view of Becker.

Claim 23 recites an analysis apparatus for analyzing stored frames of time-stamped cyclical imaging data and time-stamped waveform data obtained during a study of an object during a plurality of cycles, the imaging data comprising frames representative of a succession of images of the object, said apparatus comprising "an imaging system . . . a monitoring system . . . and a computer in communication with said imaging system and said monitoring system, said computer configured to "time-stamp each of the frames within the cyclical image data acquired by said apparatus using a first clock within said imaging system . . . time-stamp at least one feature within the waveform data using a second clock within said monitoring system, the second clock different than the first clock . . . store the time-stamped frames of the cyclical image data and the time-stamped waveform data in a memory device . . . synchronize time-stamps generated by the first clock with time-stamps generated by the second clock . . . analyze the stored time-stamped waveform data to determine times of a selected phase in the plurality of cycles . . . select, in the plurality of cycles, stored frames of time-stamped cyclical imaging data corresponding to the determined times of the selected phase . . . align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cycles . . . and produce a single representative frame of image data using the aligned and averaged frames of imaging data."

Neither Christiaens not Becker, considered alone or in combination, describes or suggests an analysis apparatus for analyzing stored frames of time-stamped cyclical imaging data and time-stamped waveform data obtained during a study of an object during a plurality of cycles as recited in Claim 23. More specifically, neither Christiaens not Becker, considered alone or in combination, describes or suggests an analysis apparatus that includes a computer that time-stamps each of the frames using a first clock within an imaging system, time-stamps at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronizes the time-stamps generated by the first clock with the time-stamps generated by the second clock. Furthermore, neither Christiaens not Becker, considered alone or in combination, describes or suggests an analysis apparatus that includes a computer that produces a single representative frame of image data using aligned and averaged frames of imaging data.

Rather, Christiaens describes quasi-automatically selecting images recorded approximately at the moment a detected R-peak occurred using synchronization properties between a retrieved image sequence and a retrieved ECG sequence. Christiaens also describes that a plurality of selected images are displayed as separate images. Becker describes using a shared clock to acquire synchronized image data and waveform data.

Accordingly, for at least the reasons set forth above, Claim 23 is submitted to be patentable over Christiaens in view of Becker.

Moreover, in contrast to the assertions in the Office Action, Applicants respectfully submit that it would not have been obvious to one skilled in the art to combine the teachings of Becker with the teachings of Christiaens to arrive at the present invention. More specifically, Applicants submit that Becker teaches away from the present invention. If art "teaches away" from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention.

Specifically, Becker is directed to acquiring imaging data and waveform data based on a shared clock. Accordingly the method described in Becker does not use different first and second clocks to time-stamp the image and waveform data. Further, because Becker describes a shared clock, Becker does not describe or suggest synchronizing data based on the time-stamps of the first and second clocks. In further contrast to the presently claimed invention, Becker describes that separate acquisition clocks may only be used if the image and waveform acquisition devices share a common channel. As such, Becker teaches away from time-stamping each of the frames using a first clock within an imaging system, time-stamping at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronizing the time-stamps generated by the first clock with the time-stamps generated by the second clock. Accordingly, Applicants respectfully submit that the cited art as a whole teaches away from the methods and apparatus as recited.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 11, 8-12, and 19-23 be withdrawn.

The rejection of Claims 2-7 and 13-18 under 35 U.S.C. § 103(a) as being unpatentable over Christiaens in view of Becker, in further view of Manning et al. (U.S. Pat. No. 6,501,979) (hereinafter referred to as "Manning") and Ossmann et al. (U.S. Pub. No. 2004/0092816) (hereinafter referred to as "Ossmann") is respectfully traversed.

Christiaens and Becker are described above. Manning describes a medical imaging method that includes gating the acquisition of imaging data using a synchronization signal. More specifically, electrocardiogram (ECG) signals (30 and 63) representing the electrocardiogram of a subject (7) within an examination zone of a medical imaging apparatus (1) and peripheral pulse (PPU) signals (30 and 66) representing occurrences of peripheral pulses in the subject (7) are obtained. Using the ECG and PPU signals (30, 63, and 66), one or more synchronization signals (42, 42', 43, 43', and 72) that represent occurrences of at least one pre-determined phase of the cyclic movements of the heart are generated (71). The medical imaging apparatus (1) is controlled (73) based on the synchronization signals (42, 42', 43, 43', and 72) to collect imaging data at a pre-determined cardiac phase. As such, the ECG and PPU signals (30, 63, and 66) are used to trigger (54 and 73) the collection of imaging data. The ECG signal may be pre-processed by high-pass filtering an analog input signal, digitizing the signal, removing obvious or simple artifacts, such as spikes or baseline drift, from the digitized signal, and making the pre-processed ECG signals available in real-time.

Notably, Manning does not describe nor suggest time-stamping each of the frames using a first clock within an imaging system, time-stamping at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronizing the time-stamps generated by the first clock with the time-stamps generated by the second clock. Further, Manning does not describe nor suggest producing a single representative frame of image data based on aligned and averaged frames of imaging data.

Ossmann describes a method for anatomical imaging, wherein image data are acquired in synchronism with corresponding physiological cycles of a subject. An electrocardiogram (ECG) waveform of the patient is used to trigger image data acquisition such that data acquisition is synchronized to a specific phase of the subject's cardiac cycle. More specifically, an image volume is divided into volume segments (VS1-VS9). Image data for each volume segment (VS1-VS9) is acquired during a cardiac cycle (CC1-CC9), wherein each cardiac cycle (CC1-CC9) includes a plurality of cardiac phases (CP1-CP12). As such, imaging data for each volume segment (VS1-VS9) includes data for each cardiac phase (CP1-CP12) of a cardiac cycle (CC1-CC9). The acquired image data is organized and combined such that data from each volume segment (VS1-VS9) during each cardiac cycle (CC1-CC9) is used to form an image at a cardiac phase (CP1-CP12). By obtaining a three-dimensional image representing a heart in each cardiac phase, a variety of information can be obtained. For example, image analysis techniques can be utilized to quantify maximum and minimum volumes of the left ventricle to calculate ejection volume and ejection fraction.

Notably, Ossmann does not describe nor suggest time-stamping each of the frames using a first clock within an imaging system, time-stamping at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronizing the time-stamps generated by the first clock with the time-stamps generated by the second clock. Further, Ossmann does not describe nor suggest producing a single representative frame of image data based on aligned and averaged frames of imaging data.

Applicants respectfully note that the Examiner has not cited to any place in Manning and/or Ossmann that describes or suggests "the steps of filtering non-left ventricle anatomy from the single representative frame of image data, to detect edges of a left ventricle wall in the filtered [*sic*], to determine both a systolic volume and a diastolic volume, and determining an ejection fraction." Office Action, page 5. Because no citations are made to Manning and/or Ossmann that show where the recitations that are not described by Christiaens and/or Becker are described therein, in the event the Examiner maintains his rejection of the claims in view of Manning and/or Ossmann, Applicants respectfully request that the Examiner clearly delineate and point out the features disclosed by Manning and/or Ossmann that the Examiner believes corresponds to the features recited in the claims.

Claims 2-7 depend, directly or indirectly, from independent Claim 1, which is recited above.

None of Christiaens, Becker, Manning, and Ossmann, considered alone or in combination, describe or suggest a method for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles as recited in Claim 1. More specifically, none of Christiaens, Becker, Manning, and Ossmann, considered alone or in combination, describe or suggest utilizing a computer to time-stamp each of the frames using a first clock within an imaging system, time-stamp at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronize the time-stamps generated by the first clock with the time-stamps generated by the second clock. Furthermore, none of Christiaens, Becker, Manning, and Ossmann, considered alone or in combination, describe or suggest utilizing a computer to produce a single representative frame of image data based on aligned and averaged frames of imaging data.

Rather, Christiaens describes quasi-automatically selecting images recorded approximately at the moment a detected R-peak occurred using synchronization properties between a retrieved image sequence and a retrieved ECG sequence. Christiaens also describes that a plurality of selected images are displayed as separate images. Becker describes using a shared clock to acquire synchronized image data and waveform data, Manning describes that an ECG signal may be pre-processed by high-pass filtering an analog input signal, digitizing the signal, and removing obvious or simple artifacts, such as spikes or baseline drift, from the digitized signal, and Ossmann describe that image analysis techniques can be utilized to quantify maximum and minimum volumes of the left ventricle to calculate ejection volume and ejection fraction.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Christiaens in view of Becker, and further in view of Manning and Ossmann.

When the recitations of Claims 2-7 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2-7 likewise are patentable over Christiaens in view of Becker, and further in view of Manning and Ossmann.

Claims 13-18 depend, directly or indirectly, from independent Claim 12, which is recited above.

None of Christiaens, Becker, Manning, and Ossmann, considered alone or in combination, describe or suggest a cardiology analysis apparatus for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles as recited in Claim 12. More specifically, none of Christiaens, Becker, Manning, and Ossmann, considered alone or in combination, describe or suggest a cardiology analysis apparatus that includes a computer that time-stamps each of the frames using a first clock within an imaging system, time-stamps at least one feature within the waveform data using a second clock within a monitoring system, wherein the second clock is different than the first clock, and synchronizes the time-stamps generated by the first clock with the time-stamps generated by the second clock. Furthermore, none of Christiaens, Becker, Manning, and Ossmann, considered alone or in combination, describe or suggest a cardiology analysis apparatus that includes a computer that produces a single representative frame of image data based on aligned and averaged frames of imaging data.

Rather, Christiaens describes quasi-automatically selecting images recorded approximately at the moment a detected R-peak occurred using synchronization properties between a retrieved image sequence and a retrieved ECG sequence. Christiaens also describes that a plurality of selected images are displayed as separate images. Becker describes using a shared clock to acquire synchronized image data and waveform data, Manning describes that an ECG signal may be pre-processed by high-pass filtering an analog input signal, digitizing the signal, and removing obvious or simple artifacts, such as spikes or baseline drift, from the digitized signal, and Ossmann describes that image analysis techniques can be utilized to quantify maximum and minimum volumes of the left ventricle to calculate ejection volume and ejection fraction.

Accordingly, for at least the reasons set forth above, Claim 12 is submitted to be patentable over Christiaens in view of Becker, and further in view of Manning and Ossmann.

When the recitations of Claims 13-18 are considered in combination with the recitations of Claim 12, Applicants submit that dependent Claims 13-18 likewise are patentable over Christiaens in view of Becker, and further in view of Manning and Ossmann.

Moreover, in contrast to the assertions in the Office Action, Applicants respectfully submit that it would not have been obvious to one skilled in the art to combine the teachings of Manning and Ossmann with the teachings of Christiaens and/or Becker to arrive at the present invention. More specifically, Applicants submit that Manning and Ossmann each teach away from the present invention. If art "teaches away" from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention.

Specifically, Manning is directed to acquiring imaging data based on ECG and PPU signals, and more specifically describes that *imaging data is acquired* based on the ECG and PPU signals. Accordingly the method described in Manning does not use the ECG and PPU signals to analyze stored frames of imaging data *after the imaging data is acquired* (emphasis added). As such, Manning teaches away from selecting, in a plurality of cardiac cycles, stored time-stamped frames of imaging data corresponding to determined times of a selected phase.

Furthermore, Ossmann is directed to acquiring image data in synchronism with corresponding physiological cycles of a subject by using an ECG waveform to trigger data acquisition. Because Ossmann describes that imaging *data is acquired* based physiological cycles, the method in Ossmann does not use the physiological cycles to analyze stored frames of imaging data *after the imaging data is acquired* (emphasis added). As such, Ossmann teaches away from selecting, in a plurality of cardiac cycles, stored time-stamped frames of imaging data corresponding to determined times of a selected phase. Accordingly, Applicants respectfully submit that the cited art as a whole teaches away from the methods and apparatus as recited.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 2-7 and 13-18 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action are respectfully solicited.

Respectfully submitted,

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